

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): SAHOTA G.	Group Art Unit: 2618
Application Serial No.: 10/624,247	Examiner: VUONG, QUOCHIEN B.
Filed: July 21, 2003	Conf. No.: 7330
Title: INTERFACE BETWEEN DIGITAL AND ANALOG CIRCUITS	

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Commissioner:

In response to the Advisory Action dated April 20, 2009 and the Final Office Action dated February 4, 2009, please consider the following pre-appeal brief request for review. In the Office Action, the Examiner rejected pending claims 1-35, and 37. More specifically, the Examiner rejected claims 1-5, 7-13, 15-17, 22-28, and 33-37 under 35 U.S.C. §103(a) as being unpatentable over Lippmann, *et al.* (U.S. Patent No. 5,371,500) in view of Cook (U.S. Patent No. 4,894,864), claim 6 under 35 U.S.C. §103(a) as being unpatentable over Lippmann in view of Cook and Rosch *et al.* (U.S. Patent No. 5,274,702), and claims 18, 21, 29, and 32 under 35 U.S.C. §103(a) as being unpatentable over Lippmann in view of Cook and Nakamura *et al.* (U.S. Patent No. 4,573,153). The applicant submits this Pre-Appeal Brief as the applicant believes the Examiner has committed a clear error in finding the claimed limitations are taught or suggested by the references and has not provided evidence there is an expectation of success in combining the references.

ARGUMENT

Rejection of Claims 1-5, 7-13, 15-17, 22-28, and 33-37 Under 35 U.S.C. §103(a)

Claims 1-5, 7-13, 15-17, 22-28, and 33-37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lippmann, *et al.* (U.S. Patent No. 5,371,500) in view of Cook (U.S. Patent No. 4,894,864). Applicant respectfully submits that the Examiner has committed clear error in finding that all the limitations of these claims are found in the references.

For example, claim 1 recites, “a device comprising an interface circuit formed on a first integrated circuit (IC) for generating a differential current signal responsive to a reference signal and to a digital data input; and a circuit element formed external of the first IC for generating an output signal on the basis of the differential current signal.” (Emphasis added). Applicant submits that not all of these limitations are taught or suggested by the cited portions of the cited references.

In making the rejection, the Examiner relies on Lippmann to show a device comprising an interface circuit formed on a first integrated circuit (IC) for generating a signal responsive to a reference signal and to a digital data input; and a circuit element formed external of the first IC for generating an output signal on the basis of the signal from the first IC. The Examiner acknowledges that Lippmann fails to teach or suggest that the signal from the first IC is a differential current signal and relies on Cook to cure this deficiency. (See Detailed Action, pages 3 and 4).

In response, Applicant first notes that the cited portions of Lippmann do not teach or suggest a circuit element formed external of the first IC for generating an output signal. Specifically, the cited portions of Lippmann appear to describe a device in which interface circuitry 30 merely converts digital signals from digital circuitry 22 to analog signals and also converts analog signals from analog circuitry 36 to digital signals, taking voltage variations into account. (Lippmann; Col. 2, lines 40-44). Once the signal is converted by interface circuitry 30, there is no teaching or suggestion of any circuit element external of a first IC for generating an output signal, as recited in Applicant’s claims. Even if the digital circuitry 22 and the analog circuitry 36 can be found to provide input signals to the interface circuitry 30 for conversion, the cited portions of Lippmann do not teach or suggest that either the digital circuitry, the analog circuitry, or any other circuit element external of the interface circuitry 30 actually generates an output signal. The cited portions of Cook also fail to teach or suggest this limitation. Thus,

Applicant submits that the cited portions of the cited references do not teach or suggest a circuit element formed external of the first IC for generating an output signal on the basis of the differential current signal.

Furthermore, Applicant also submits that the cited portions of Lippmann and Cook do not teach or suggest “an interface circuit formed on a first integrated circuit (IC) for generating a differential current signal responsive to a reference signal and to a digital data input,” as recited in claim 1. Lippmann shows a digital to analog converter (D/A) 88 receiving reference signals on lines 26 and 28 and a digital signal on a bus 58 and generating a single-ended analog signal on a line 89. (See FIGS. 1, 3 and 4.) Lippmann does not teach generating a differential current signal, as stated in the rejection. Applicant submits that Cook does not disclose this limitation. Cook describes an input path 17 providing an output voltage (labeled as I) in response to digital input signals and a transconductance amplifier 21 providing an analog output signal in the form of a current in response to the output voltage I (see FIG. 1, column 2, lines 57-59, and column 2, line 68 to column 3, line 2.). Cook does not describe generating a differential current signal responsive to a reference signal and to a digital data input, as recited in claim 1. Thus, Lippmann and Cook do not describe this feature of claim 1. The Advisory Action states that Cook discloses “generating a different current signal responsive to two signals: a digital data input (17) and another signal (19). Therefore, the combination of Lippmann and Cook reads on the claimed invention of claims 1 and 22.” Applicant respectfully submits that the Examiner has not put forth any reasoning regarding how to combine the references. Further, Applicant further submits that combination does not result in the claimed invention.

Applicant respectfully submits that combination is an improper application of 35 U.S.C. § 103 and that the Examiner has not presented any evidence that the Examiner’s combination of Lippmann and Cook is a combination of familiar elements according to known methods that yields predictable results.

The Supreme Court stated that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1739 (2007). In a precedential BPAI opinion, the Board explained that “the operative question in this ‘functional approach’ is, therefore, ‘whether the improvement is more than the predictable use of prior art elements according to their established functions.’” *Ex Parte Smith (BPAI, June 25, 2995, per curium)*, Page 13. (citing *KSR*, Page

1740). Appellant respectfully submits that the Examiner's combination of Lippmann and Cook is not a combination of familiar elements according to known methods that yields predictable results. Any substitution of circuits of Lippmann with circuits of Cook significantly alters the teachings of Cook. The substitution of feedback circuits of Cook for conversion circuits of Lippmann is not a "predictable use of prior art elements according to their established functions."

The Supreme Court warned that "[a] fact finder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning." *KSR*. at 1742. Appellant respectfully submits that the cited prior art is only combined in retrospect, in light of the present invention. That is, the obviousness rejection is based upon characterization of Lippmann and Cook in view of the Appellant's own invention description. Appellant respectfully submits that the Examiner has combined the references by observing that Lippmann does not teach or suggest a differential signal and that Cook includes a discussion of a differential signals. For at least the above reasons, Applicant submits that claim 1 is patentable over Lippmann in view of Cook.

Independent claim 22 recites the features noted above for claim 1. In particular, claim 22 recites "an analog integrated circuit (IC) ... responsive to an input differential current signal generated externally as a function of a reference signal and a digital data input" and "a circuit element for generating an output signal on the basis of the differential current signal." These features are not described by Lippmann or Cook for the reasons noted above for claim 1.

Independent claim 33 also contains subject matter similar to that contained in claim 1, discussed above. Thus, Applicant submits that claim 33 is also allowable for at least the reasons argued above in connection with claim 1.

Claims 2-5, 7-13, 15-17, 23-28 34-35 and 37 depend from one of claims 1, 22 or 33 which applicant submits are allowable. Accordingly, these claims are allowable over Cook and Lippmann at least for the reason that they depend from a base claim allowable over these references.

Rejection of Claims 6, 18, 21, 29, and 32 Under 35 U.S.C. §103(a)

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Lippmann in view of Cook and Rosch *et al.* (U.S. Patent No. 5,274,702).

Claims 18, 21, 29, and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lippmann in view of Cook and Nakamura *et al.* (U.S. Patent No. 4,573,153).

Claims 6, 18, and 21 are dependent on claim 1. Claims 29 and 32 are dependent on claim 22. The combination of Lippmann and Cook does not disclose all of the elements of base claims 1 and 22, as discussed above. Hence, the combination of Lippmann and Cook is an insufficient basis for the §103(a) rejection of dependent claims 6, 18, 21, 29, and 32. The other references do not address the deficiencies of Lippmann and Cook.

Accordingly, the §103(a) rejection of claims 6, 18, 21, 29, and 32 should be withdrawn.

B. CONCLUSION

The applicant respectfully submits that the Examiner has made a clear error in finding []. For all the foregoing reasons, an allowance of claims 1-35 and 37 pending in the present application is respectfully requested.

The Commissioner is hereby authorized to charge payment of any fee(s) or any underpayment of fee(s) or credit any overpayment(s) to Deposit Account No. 17-0026. If necessary, applicant requests, under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application and to charge the fees for a large entity under 37 CFR 1.17(a).

Respectfully submitted,

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